



Published weekly for employees of Lawrence Livermore National Laboratory

Friday, June 10, 2005

Vol. 30, No. 23

New Laboratory counsel selected

Melissa M. Allain, an attorney with extensive experience in business enterprises, has been selected as Laboratory Counsel.

The selection was announced by Director Michael Anastasio and University of California General Counsel James Holst. Her appointment has been approved by the University of California Board of Regents and the Department of Energy. Allain will report to both Anastasio and Holst.

“Melissa is highly qualified to take on the role of Lab Counsel,” Anastasio said. “Her expertise and strong professional credentials are well suited to the various issues our Laboratory faces. I am very pleased to have Melissa as part of our senior management team.”

As Lab Counsel, Allain will provide legal



Melissa M. Allain

advice to and representation of the Laboratory on all legal matters arising from management and operation of a large R&D facility. Key responsibilities include advising Laboratory senior management on a broad range of legal matters; managing litigation arising from management and operation of the Laboratory; analyzing pending legislation and rulemaking affecting the DOE, UC and national laboratories; and reviewing and interpreting federal and state statutes and regulations, among other duties.

The Laboratory Counsel is a member of the

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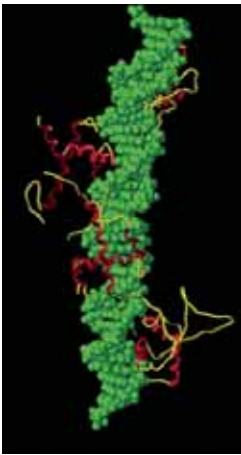
Lab scientists and collaborators develop bioinformatics method for analyzing key DNA regions

By Charles Osolin

NEWSLINE STAFF WRITER

Scientists at LLNL and the Linnaeus Centre for Bioinformatics (LCB) at Uppsala University in Sweden have developed a new bioinformatics technique for systematically analyzing key regions in DNA that help control gene activity.

Understanding the complex regulatory mechanisms that tell genes when to switch on and off is one of the toughest challenges facing researchers attempting to discover how life works. “Binding sites,” or areas



The yeast telomere-binding protein RAP1.

See DNA, page 7

Lab technique for reducing power plant emissions receives patent

By Anne M. Stark

NEWSLINE STAFF WRITER

A patent has been issued to the Department of Energy for the work of two Lab scientists who created a technique to capture carbon dioxide produced at power plants and place it in the ocean, a process that mimics a natural weathering and acid neutralization process.

Dubbed “Accelerated Weathering of Limestone,” researchers Greg Rau, who also works at the UC Santa Cruz Institute for Marine Sciences, and Ken Caldeira say the process has less impact on marine life than the ongoing, passive uptake of excess CO2 by the ocean, or the proposed, purposeful injection of anthropogenic (manmade) CO2 into the deep sea.

To help control the emission of carbon

dioxide from power plants, the process would combine the carbon dioxide in power plant flue gas with water to produce a carbonic acid solution. The solution would be mixed with limestone — which neutralizes the carbon dioxide by converting it to bicarbonate — and then the solution would be released into the ocean. The

See CARBON, page 8

NAI leader Steve Cochran to retire later this month

By Stephen Wampler

NEWSLINE STAFF WRITER

Later this month, one of the early leaders of the Laboratory’s Nonproliferation, Arms Control and International Security (NAI) directorate and counterterrorism efforts will retire.

Steve Cochran, acting associate director for NAI and acting director of the Lab’s Homeland



Steve Cochran

See COCHRAN, page 7

Cave bear opens new doors to the past

Eddy Rubin, director of the DOE Joint Genome Institute, describes the sequencing of genomic DNA from 40,000-year-old bones and teeth of cave bears, an extinct species that lived during the Ice Age. At a press conference at the UC Berkeley Museum of Paleontology, Rubin said that although the DNA was severely degraded, the researchers were able to obtain enough useful material to decode a portion of the bears’ genome — the first time such ancient genomic DNA has been sequenced. The successful research could eventually lead to decoding the DNA of Neanderthals, the closest ancestors of modern humans, who lived at the same time as the cave bears. Scientists believe that comparing the genomes of Neanderthal and modern man will shed new light on human evolution.



DAVID SCHWEOGLER/NEWSLINE



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The man who put the ‘L’ in LTRAIN looks back

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Getting into the act

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LAB COMMUNITY NEWS

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Wednesday
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The Lab's Food Services Group and Eurest Dining Services will be introducing BBQs every Wednesday this summer starting today and ending on Aug. 17 at the South Side Cafe. The BBQs will be located on the patio area from 11:30 am – 1:30 pm. The menu will consist of hot dogs, hamburgers, or chicken, served with chips, cookie, and a drink for only \$5.50 with discount coupons that can be picked up at the South Side Cafe. The coupons will expire June 30.

...

Applications for Student-Employee Graduate Research Fellowships (SEGRF) for UC students are now being accepted through June 30. LLNL, in partnership with the University of California, provides graduate research fellowships for students to carry out research in subjects related to the goals and missions of the Laboratory. This research must be part of the student's pursuit of a Ph.D. degree and must be carried out at LLNL. Fellowships will be awarded on a competitive basis, using the criteria described on the web at: <http://segrf.llnl.gov>

...

A new installment of "Technology Today," the television show produced by the Public Affairs Office, commemorates the **"World Year of Physics 2005."** The program will be shown daily, every half hour, on Lab TV channel 4. The program can also be seen on Ch. 30, CTV, the cable access channel in the Tri-Valley. This special program focuses on how Albert Einstein's discoveries have influenced nearly every endeavor at LLNL. Lab personnel featured include: Bill Goldstein, Neil Holmes, Bruce Remington, Jeff Wisoff, Tammy Jernigan, Bill Craig, Simon Labov, Ed Moses, Bruce Tarter, and Michael Anastasio.

Up
&
Coming

Back for a second year, **"Got Science? Discover Science Saturday,"** a free, fun-filled day showcasing the Lab's science and technology, is set for June 25, from 10 a.m. to 2 p.m. at the Lab's Discovery Center. The event, sponsored by the Public Affairs Office, is geared for families, community members and visitors. Experience a wide array of unique displays, demos, and hands-on activities for all ages and scientific tastes. For more information, call 2-4599 or check the Web at www.llnl.gov/pao.

Retirees are life blood of Lab drive



JACQUELINE MCBRIDE/NEWSLINE

Volunteers Marianne Green (left) and Barbara Hill (center) greet blood donor Leslie Johnson of B Division at this week's LLESA-coordinated blood drive.

The Lab's blood drive was held this week in its newly remodeled permanent location, Trailer 4675, the former Central Cafeteria. In addition to the new surroundings, donors got acquainted with a new, more streamlined process that yields a shorter total donation time.

Livermore Laboratory Employee Services Association coordinates the Lab blood drives. Helping LLESA to ensure blood drive efficiency is Lab retiree Barbara Hill who organizes retiree volunteers to assist with the Red Cross visits to the Lab.

About five years ago LLESA approached the Red Cross to organize and sponsor a pilot volunteer program involving retirees. The retiree program has since become a pleasant addition to each Lab blood drive and the Red Cross has implemented similar programs at other companies. Volunteers serve as greeters to welcome donors and later to assist in handing out snacks. In addition to scheduling the volunteers, Hill or another volunteer make reminder phone calls to employee donors.

"I think that many retirees feel a sense of loyalty to the Lab and enjoy coming on site. I also believe that we help to make the process of donating blood run a little smoother. The donors certainly seem to enjoy the interaction," Hill said.

IN MEMORIAM

Helen Leona Grove

Helen Leona Grove died on Saturday, May 28, in the same home where she raised her family for the last half century. She was 86.

Born Helen Leona Macdonald in New Richmond, Wisconsin, in 1918, she worked for many years as an executive secretary at Aerojet and at the Laboratory.

Grove enjoyed gardening, reading, observing the wildlife around her home and her children and grandchildren. She was devoted to her family and helping others. Her home was always open to relatives in need. She was active in her church and served as a longtime Sunday school teacher and church officer at the former Immanuel Lutheran Church, now Peace Lutheran, in Danville.

She was preceded in death by her 10 siblings and Harold J. Grove, her husband of more than 50 years. Grove is survived by her three children: Steven Grove, Margery Hofmann and Maureen Turman; four grandchildren: Bryan and Amy Traskowski, Jason Grove and Larkin Turman; and one great-grandchild, Ashley Grove.

Memorial services were held. Memorial donations may be made to the Meals on Wheels program of Senior Outreach Services,

1300 Civic Dr., Walnut Creek, or the Prime Time Seniors Program of Community Presbyterian Church, 222 W. El Pintado Rd., Danville.

Newsline

Newsline is published weekly by the Public Affairs Office, Lawrence Livermore National Laboratory (LLNL), for Laboratory employees and retirees.

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Distribution: Mail Services at LLNL

Public Affairs Office: L-797 (Trailer 6527), LLNL, P.O. Box 808, Livermore, CA 94551-0808

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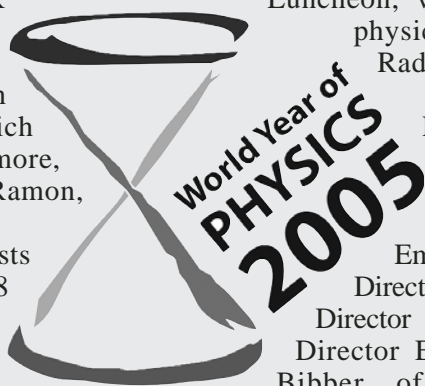
Web site: <http://www.llnl.gov/pao/>

Science Week events to be rebroadcast on cable

The Laboratory's week of special events in celebration of the World Year of Physics will be broadcast on Comcast Channel 26, which services the cities of Livermore, Pleasanton, Dublin, San Ramon, Castro Valley and Sunol.

The following broadcasts take place Saturday, June 18 through Wednesday, June 22:

6 p.m. — Livermore Chamber of Commerce



Luncheon, with speaker Simon Labov, physicist and director of the Lab's Radiation Detection Center.

7 p.m. — LLNL's "Community Leader Day"

8:30 p.m. — The "Future of Physics" panel discussion, featuring Director Emeritus Bruce Tarter, Deputy Director Cherry Murray, former Director John Nuckolls, Associate Director Elbert Branscomb, Karl van Bibber of the Lab Science and Technology Office and N Division physicist

Leslie Rosenberg.

10:15 p.m. — "Einstein in 1905 — Three Kinds of Originality," a Director's Distinguished Lecturer Series talk by Stanford professor CW Francis Everitt.

On Thursday and Friday, June 23-24, Channel 26 will broadcast:

9 p.m. — "Supernovae, Dark Energy and the Accelerating Universe," a Director's Distinguished Lecturer Series talk by physicist Saul Perlmutter of Lawrence Berkeley National Laboratory.

10:30 p.m. — "Community Leader Day"

BRIEFLY

UC Retirement Savings Program announces new recordkeeping service

Effective July 1, the account and recordkeeping service for the UC Retirement Savings Program will be transferred to Fidelity Investment Tax-Exempt Services Company (FITSCO). At the completion of the transition to the new recordkeeping service, FITSCO will be handling the administration for the Defined Contribution Plan, Tax-Deferred 403(b) Plan, and 457(b) Deferred Compensation Plan.

Employees will receive a transition packet at their homes which will provide specific information. In addition, a series of informational group sessions have been scheduled for a FITSCO representative to review information about the transition and answer any questions. The times and locations of these meetings are: noon-1 p.m. and 3-4 p.m., Tuesday, June 14, Bldg. 361 auditorium; 9:30-10:30 a.m. and noon-1 p.m., Monday, June 20, Bldg. 361 auditorium; and noon-1 p.m., Tuesday, July 5, Bldg. 543 auditorium. For information, contact the Benefits Office, 2-9935.

Microsoft Home Use Program for office professional

LLNL employees are eligible to participate in the Microsoft Home Use Program. Entering the program allows LLNL employees that are already licensed users at the Laboratory to personally purchase a single copy of Microsoft Office for PC or Mac. The cost is \$19.95 plus tax. In order to receive an individually packaged and licensed copy of Office, employees need to provide a home mailing address along with a personal credit card. Microsoft guidelines for participating in the program can be found at https://oms.one.microsoft.com/tc/cr_information/hupprogrules.htm and https://oms.one.microsoft.com/tc/cr_information/huptc.htm.

The basic process is as follows:

- 1) Go to <https://hup.microsoft.com>
- 2) Enter your llnl.gov e-mail address along with program code 0E6437B643.
- 3) Wait for an e-mail with subject "Welcome to Microsoft Home Use Program."
- 4) Follow the link within the e-mail and follow the instructions on How to Order.
- 5) Choose either the PC/Windows or Mac version
- 6) For PC/Windows choose 2003 version (new) or XP version (old) or for Mac choose 2004 version (new) or 10 version (old).
- 7) Enter payment and shipping information.

You should receive your individual copy of Microsoft Office within three to six weeks. If you have any questions about this process, contact 4help@llnl.gov.

Manhattan Project Heritage Preservation Association reunion

The Manhattan Project Heritage Preservation Association is organizing a Reunion for June 16-19, in Oak Ridge, Tenn., commemorating the 60th anniversary of the end of World War II.

As part of the festivities Oak Ridge National Laboratory and the Department of Energy will open their doors like never before. For the first time, the public can visit the Beta III Calutrons at the Y-12 Plant, where the world's first enriched uranium 235 was produced for the Little Boy atomic bomb. Also, a barbecue picnic will be held outside the K-25 building, the world's largest building under one roof at the time it was built.

Speakers will include a keynote address by former Sen. Bob Dole, and a talk by Ted "Dutch" Van Kirk, the navigator of the Enola Gay.

For more information, including a schedule of events and registration forms, call 888-299-4494, or visit <http://www.mphpa.org/REUNION-2005/Reunion.htm>.

CalPERS long-term care application period now through Sept. 30

The 2005 CalPERS Long-Term Care application period is May 1 - Sept. 30. Long-term care provides the extended care you would need when, because of a chronic illness, injury, or old age you need help with basic activities like dressing, bathing or eating. Generally long-term care is not covered by health insurance, disability insurance or Medicare. The program is available to all California public employees and retirees, including University of California employees and their family members.

Applicants may choose from a broad array of benefits options in each of the three CalPERS Long-Term Care plans. Premiums are age-related. The younger you are when you apply, the less a plan costs. If you are interested in ordering an application kit or need more information, please call 1-800-266-1050 or you may visit the CalPERS Website at www.CalPERS.com.

New Web-based bike course

As part of the Laboratory's observance of Bicycle Safety Month, discover there is more to safe bicycling than simply gripping handlebars with two hands.

The LLNL Traffic Safety Committee recommends that you take a Web-based course that offers comprehensive tips for bike use. The LLNL-designed course — HS5420-W: Bicycle Safety — covers Lessons Learned regarding bike accidents, how to do a quick safety check before using a Lab bike, hazards to be aware of when riding, the principles of defensive riding, and much more.

Employees can find the 15-minute course at <http://www-hctrain.llnl.gov/SET/HS5420/BS01.html>



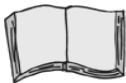
NEWS YOU CAN USE



JACQUELINE MCBRIDE/NEWSLINE

Edward Teller scholarship winners visit Lab

Three local high school students, two from Granada High and one from Livermore High, recently received Edward Teller Science Scholars Awards. The awards, instituted last year in honor of Dr. Teller, are given by the Laboratory to graduating seniors who excel in science studies. This year's award recipients are (left to right) Anna Seibers, a Granada High School graduate, who will attend the University of California, San Diego; Katie Dashner, a Livermore High School graduate who plans to major in biology at the University of San Diego; and Leila Beach, a Granada High School graduate who is heading to Stanford University in the fall. Each student receives a \$1,000 scholarship and is eligible for an internship at the Lab when they complete their first year of college. They are joined by Richard Farnsworth, manager of the Lab's Science Technology and Education Program (STEP) and Ann Willoughby, the Lab's Community and External Relations manager.



Summer Student Calendar



Seminars, panels and other activities are now in full swing for summer student employees. Go to the Student Bulletin Board at <http://education.llnl.gov/sbb/> for details and to register for events.

Wednesday
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Seminar: Biodefense Knowledge Center (BKC) Overview, by Bill Colston, Physics and Advanced Technologies. Noon to 2 p.m.

Bldg. 132S, room 1755. Contact: Barry Goldman, 2-5177.

Thursday
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Seminar: National Security Overview, by Wayne Hofer, National Security Organization, LLNL. Noon. Bldg. 219, room 238. Contact: Barry Goldman, 2-5177.

Seminar: Insight into Terrorism, by Gary Richter, Internal Security Technical Systems Analyst, Sandia National Labs, 9 -10:30 a.m., Bldg. 904, auditorium. Contact: Jan Bachman, Sandia National Labs, 294-4660.

Please send your summer student calendar items to lucchetti1@llnl.gov

Technical Meeting Calendar

Friday
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INSTITUTE FOR GEOPHYSICS AND PLANETARY PHYSICS
"Formation and Evolution of Massive Galaxies," by Patrick McCarthy, Carnegie

Observatories. Noon, Bldg. 219, room 163. Property protection area. Foreign national temporary escorted building access procedures apply. Contact: Wil van Breugel, 2-7195, or Lisa Lopez, 3-0250.

Monday
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CHEMICAL BIOLOGY AND NUCLEAR SCIENCE DIVISION/ BIOSECURITY & NANOSCIENCES
Micro- & Nano-fluids with Proteins and Carbon

Nanotubes," by Olgica Bakajin, Molecular Biophysics & Functional Nanostructures Group. 2 p.m., Bldg. 151, Stevenson Room. Foreign nationals may attend if approved plan is on file, which includes Bldg. 151. Contact: Ted Tarasow, 3-7241, or Kathy Ricard, 3-8024.

Tuesday
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LIVERMORE COMPUTING
LC Customers Monthly Meeting, 9:30 - 11 a.m., Bldg. 111, Poseidon Room Contact: Teresa Delpha, 3-7329.

CENTER FOR APPLIED SCIENTIFIC COMPUTING (CASC) / INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH (ISCR)
"Prophesy: Analysis & Modeling of Parallel & Distributed Applications," by Valerie Taylor,

Texas A&M University. 10 a.m., Bldg. 453, room 1001, Armadillo Room. For more information, see URL (<http://www.llnl.gov/casc/calendar.shtml>) Property protection area. Foreign national temporary escorted building access procedures apply. Contact: Karen Karavanic (CASC), 3-4480, or Erica Dannenberg, 3-2167.

CHEMICAL BIOLOGY AND NUCLEAR SCIENCE DIRECTORATE/BIOSECURITY & NANOSCIENCES LABORATORY

"Selective Growth of 1-D Nanostructures: Applications in Shadow Lithography and Aligned Carbon Nanotube Membranes," by Nitin Chopra, post doctoral applicant, University of Kentucky at Lexington. 2 p.m., Bldg. 151, room 1209, Stevenson Room. Foreign nationals may attend if approved plan is on file, which includes Bldg. 151. Contact: Kathy Ricard, 3-8024, or Jason Holt, 2-6573.

Wednesday
15

INTEGRATED COMPUTING & COMMUNICATIONS DEPARTMENT/MACINTOSH TECHNICAL SEMINAR SERIES
"Mac OS X Security," by Ian Kaufman. 10:30 a.m., Bldg.

453 auditorium (new location). Contact: Duane Straub, 2-9774, or straub1@llnl.gov

ENERGY AND ENVIRONMENT (E&E)/ DIRECTORATE-WIDE COLLOQUIUM
"Thinking Big: The Challenge of Carbon Capture and Storage as a Greenhouse Gas

Abatement Strategy," by S. Julio Friedmann. 1:30 -3 p.m., Bldg. 170, room 1091.

Thursday
16

ENGINEERING
Seminar Series: "Global Energy Security, Renewable Energy, and Roadmap to a Hydrogen Economy Solar Energy," by Gunnar Tamm, United States Military Academy. 10:30 p.m., Bldg 155, room 1101.

Friday
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INSTITUTE FOR GEOPHYSICS AND PLANETARY PHYSICS
"Testing the Black Hole Gravity," by Marek Abramowicz, Goteborg University, Sweden. Noon, Bldg. 319, room 205. Property protection area. Foreign national temporary escorted building access procedures apply. Contact: George Chapline, 2-4106, or Lisa Lopez, 3-0250.

The deadline for the next Technical Meeting Calendar is noon Wednesday.

Please submit your meetings via the new Technical Meeting Calendar form on the Web, located at <http://www.llnl.gov/tmc/index.html> For information on electronic mail or the newsgroup llnl.meeting, contact the registrar at registrar@llnl.gov.

Jim Wells steered the course of Lab's training

By Linda Lucchetti

NEWSLINE STAFF WRITER

When Lab Training Manager Jim Wells turns out the lights, closes the office door, and drives off to retirement in his RV later this month, he will have no regrets, nor will he be leaving any projects unfinished. As Wells sees it, "nothing is finished, but only in the state of continuous improvement."

With that philosophy, Wells can look back on his 33-year Lab career, and be satisfied with the changes he has engineered and the well deserved respect he has garnered from colleagues.

In 1972, with an engineering degree in hand from the University of Arizona, Wells chose LLNL over four other potential employers, for what he anticipated would be a short-term position.

"I thought I'd stay at the Lab for five or six years, and it would look good on my resume," Wells admits. "But, after I got here and passed the magical ten-year mark, I stayed. Besides, the University of California is a good employer, and Lab management is good."

Among his many key roles, Wells may best be remembered and commended most for leading the Lab's training organization into the next century, serving as primary architect for many new tools and improved processes. Wells worked in many positions within the engineering directorate, but made his mark in 1991 when then Associate Director Den Fisher tapped him to be the Lab's first training manager.

"Jim was uniquely qualified for the job. Not only did he have a strong training background, but he had an outstanding technical background that gave him the necessary perspective to ensure quality content and delivery," Fisher remembers.

The training manager position was one initiative that surfaced in the wake of numerous audits being conducted at the Laboratory during the early '90s — a time when many Lab employees will recall the term "Tiger Teams" as more than a reference to Detroit's baseball players.

Wells credits Lab management dur-



JACQUELINE MCBRIDE/NEWSLINE

Jim Wells

ing that period for foresight and strategic planning that introduced many improvements.

It was during these critical years that Wells laid the groundwork for developments that would change the way the Laboratory implemented, managed and tracked employee training — one such foundation lie in the Lab's training database-LTRAIN (Livermore Training Records and Information Network).

"It's hard to believe, but back in '91, there was no institutional training database. Back then, the Human Resources department maintained employee completion information, and that was about it. Soon after, LTRAIN's primitive predecessor LROCC (Lab Repository of Completed Courses) was born and that became the official record keeper," Wells recalled.

LTRAIN enhanced LROCC, adding vital features such as a link to the course catalogue. Wells' training organization was the first Lab group to actually draw from a live database for more efficient, real-time catalogue maintenance. Fisher notes that "Jim's computer and organizational skills, plus his understanding of operational needs, enabled him to provide

essential web-based tools like LTRAIN for planning employee training."

In short, with many stops along the way, LTRAIN has grown into a multi-faceted database capable of presenting course completions, course catalogue entries, training requirements, and course scheduling.

Wells also managed the project that created the present-day, on-line Environmental, Safety and Health (ES&H) Manual. More than a decade ago, a diverse assortment of safety, health and environmental policies and procedures existed, but were not centrally located, let alone easy to reference. Under Wells' direction, these documents were collected, analyzed and organized for consistency, maintenance and ease of reference. Today, managing the on-line document is still a huge, on-going, process but a success that has received notoriety across the DOE complex.

What is the future of Lab training? Wells believes that the amount of required training will only increase. However there is good news. "Technology has made it easier for employees to get the training. We thought that CBT (computer-based training) was an answer, but now we have a better one — the Web component. It's practical and in addition, it's valuable as a reference tool for employees," Wells states, acknowledging the Internet for many training enhancements.

Wells has some advice for his successor. "Be honest, straight forward, and whenever tough questions come up, just ask, 'What would be best for the institution?' The answer will then come easier."

"I've had the opportunity to influence the way we help employees, with available training that helps them be safe. My philosophy has always been to leave every job in better shape than when started, and to make it better."

With that, Jim Wells, a man who capitalizes on continuous improvement rather than completions might just view his upcoming retirement in a similar fashion — not an end, not a conclusion, just a way to continually improve a good life.

LBL to host DOE Advanced Computational Software workshop

BERKELEY, Calif. — Registration for the sixth annual workshop on the DOE Advanced CompuTational Software (ACTS) Collection (<http://acts.nersc.gov>) will close Saturday, June 25.

The four-day ACTS Collection will provide hands-on instruction in building robust scientific and engineering high-end computing applications. The workshop will be held Aug. 23-26 at the U.S. Department of Energy's Lawrence Berkeley National Laboratory in Berkeley, Calif. Complete information about the workshop can be found at <http://acts.nersc.gov/events/Workshop_2005/announcement.html>.

The four-day workshop will present an introduction to the ACTS Collection for application scientists whose research needs include either large amounts of computation, complex software integration, distributed computing, the use of robust numerical algorithms, or combinations of these. The workshop will include a range of tutorials on the tools (those currently available in the collection and some deliverables from the DOE SciDAC ISICs), discussion sessions aimed at solving specif-

ic computational needs of the participants, and hands-on practice using the National Energy Research Supercomputing Center's (NERSC) state-of-the-art computers.

This workshop is open to computational scientists from industry and academia. Registration fees are fully sponsored by the DOE's Office of Science. In addition, DOE will sponsor travel expenses for a limited number of graduate students and postdoctoral fellows. This support includes round-trip transportation to and from Berkeley, local transportation in Berkeley, lodging, breakfasts, lunches and workshop materials.

The ACTS Collection comprises a set of tools mainly developed at DOE laboratories and proven in many applications and fields in computational sciences. These software tools aim to simplify the solution of common and important computational problems and have substantially benefited a wide range of scientific and industrial applications. Not



only have the ACTS tools been used to help applications run more efficiently in high performance computing environments, but they have also helped users achieve computations that would not have been possible otherwise.

The format of this workshop is tailored to the computational problems and needs of its participants and the functionality available in the ACTS Collection. The number of participants is limited, and people interested in attending must fill out an on-line application form no later than Saturday, June 25. In addition, graduate students and postdoctoral fellows applying for travel support must provide a letter of support from their advisor or supervisor. This letter must also be submitted on-line and no later than the June 25 deadline.

For more information on the workshop, please contact Tony Drummond at (510) 486-7624 or Osni Marques at (510) 486-5290.



CLASSIFIED ADS

See complete classified ad listings at
<https://www-ais.llnl.gov/newsline/ads/>

AUTOMOBILES

2003 Honda Civic lx 2dr, pwr, silver, black int, Alarm, 54k miles, All records and fuel reciepts, averages about 36.5 mpg, \$11,000 916-798-5825

1959 - Buick LeSabre convertible. One owner, running condition, restorable collectors car. Make an offer 925-443-2245

1987 - Ford Ranger XLT, Long Bed, good dump-run mobile, reliable, original owner, \$1200, 925-513-4767

1970 - Corvette roadster. 350 cid, 300 hp, numbers matching. A/T. Immaculate w/ original radio. Matching hardtop. \$28k. 925-240-1090

1988 - Chevy Sportvan, raised roof, wheelchair lift/tie-downs. \$4000/OBO Call Roberta after 6pm. 209-823-1664

1995 - Red Ford Taurus GL Runs great, CD, A/C, auto windows and locks, clean interior and nice exterior 136k/miles \$2,500, OBO 925-437-5736

2000 - Ford Tauras-25k miles, excellent condition, no dings or scratches, new Michelin tires. \$7000. obo 925-449-4416

1993 - Dodge Spirit. Straight body, just passed smog, but has engine problem. Approx. 100K mi. \$800.00 or offers 209-830-4316

2001 - Oldsmobile Aurora,loaded V6, 3.5 L, auto, Pearl Wht extr w/grey leather, tinted windows, 61K miles, \$11,100, OBO (Kelley BB value) 925-447-1510

2000 - Nissan Xterra XE 4WD V6 Auto, Navy Blue w/Gray Interior. 88K Miles. AM/FM/CD, Power Windows & Locks. Runs great. \$10,000 obo. 925-330-6456

1995 - Mustang GT, 5-Speed, White, V-8, 59800 miles, AC, Power Seats, Tinted Windows, Tilt Wheel, AM/FM Stereo, CD player. \$6,200 OBO. 925-518-3690

1993 - Ford Aerostar, \$2500 or BO, Frst Green, 6cyl, 4.0ltr, 125,000Mi, long cab, dual AC(needs r12), cassette w/dual cntrls, great condition 925-634-9414

2004 - Honda Accord 5,000 miles, 4 cylinder \$18,000 1994 Lexus 64,000 miles excellent condition \$12,000 925-443-9588

1978 - - BMW 318 Good condition, engine good, needs clutch and minor interior work. \$1,000 obo. 209-834-1428

1993 - Mazda RX7. Twin turbo engine. Under 60k miles. 5 speed transmission. Bose sound, Cruise Control, Anti-lock brakes, Sunroof, , A/C. \$16,000. 925-455-0542

AUTOMOBILE ACCESSORIES

Stock wheels(no tires) off 2002 Ford F150 \$80 obo, Original suspension \$30 I put a lift on the truck. 925-449-1340

Complete XJ Jaguar rear end assy. 3.31:1 ratio (non-posi). As removed condition. \$300 925-455-0577

18inch Chrome wheels 18x9 +18offset 6x5.5lugs. Excellent condition Helo Kick set of four. Fits Chevy/GMC, Toyota most 6lugs trucks/suv. \$680.00 obo 209-915-1368

BICYCLES

Bicycle carriage convertible to a jogger. In very good condition. Seats two children. \$100. 925-454-9807

BOATS

1995 19 ft. ChrisCraft open bow ski boat with tandem trlr. 5.0L V8, EFI, Bimini top, Wake Board Tower, CD player, lots of toys. 510-538-7444

BRASS 4-BLADE PROPELLER, O.Johnson brand, mfg. 10/2000, like new, size 14 / 18 cup, fits 1 1/8 inch key-slot shaft, \$200 firm 925-455-6174

1984 Seaswirl 18 ft I/O bowrider, stored inside, excellent cond/well maintained & outfitted. New transom seal, trlr brakes \$4500 OBO. 925-447-2217

CAMERAS

Nikon Zoom Wide Angle-Telephoto Nikkor 28-80mm f/3.3-5.6G Autofocus Lens. In great shape. \$90 new, selling for \$45. 925-462-5915

ELECTRONIC EQUIPMENT

Solderless Breadboards, Jameco JE25 \$10 Three Jameco JE25 Breadboards used once for class project. 510-530-1884

HP laptop. Celeron 1.13GHz, 256MB RAM, 20 GB hard drive, CD-RW/DVD. Windows XP. Needs new battery. \$350 925-984-1690

GIVEAWAY

27 inch JVC color TV with remote, picture in picture, vertical hold is unstable. 925-443-2245

Above Ground Pool made by Splash. 17x30x4ft. Free w/all accessories. U pick up and haul away. 925-373-6651

Free Swimming Pool slide. Fair condition. Ready for pick-up. 925-455-5693

HOUSEHOLD

Red-wood backyard playground set in good condition includes two swings, monkey bars, swing bar, wave slide, sand box and play house, you haul, \$275. 925-454-9807

desk, 20x40 inches, wood, cherry finish, \$40 925-447-9114

Tappan Upright Frostless Freezer with key lock. Great condition,\$225.00 U-Haul 925-443-3259

7 pc bedroom set, (white wash) twin head/foot board, mattresses, dresser, mirrored chest, desk, night stand, hope chest 1 yr new \$900. 209-599-1955

Child-size chairs, 2, red w/ blue frame, heavy-duty preschool quality, \$15. LeapPad w/ two books, \$25. 925-454-0877

Fireplace screen, gunmetal gray wrought iron, 51 1/4 inch wide x 31 inch high. Paid \$60. New in unopened box. \$35 925-648-0671

Captains bed, oak, with twin mattress, excellent condition only 6 years old.6 drawers for storage. \$100. 209-524-0245

Sears Kenmore 80 Series Top-Loader Washer. White, Heavy Duty, 3.2 cu. ft. Super Capacity Plus,10 settings. Works well, but too small for us. \$55 OBO. 925-980-0633

Oscillating fans, 16 inch dia., variable speeds, 2 table mount fans, \$8, 1 floor mount fan, \$10. Work well. Will bring to LAB. 925-513-4767

Love Seat/Couch for sale, blue w/light multi colors, \$295 or best offer, great condition, see in Ripon area, call after 6:00pm 925-447-4898

Patio furniture, glass table, 6 ft., w/umbrella, 4 chairs, 2 chaise all with pastel colored cushions. Excellent condition. \$275.00 925-820-2921

Entertainment Center, holds 32 In TV, Stereo System, CDs, OAK Color. \$20 OBO 925-785-2371

U Shaped blue dinette seat with wood grained table ~4ft. deep X 7ft. wide, seats 4, very good condition. \$200.00 925-634-8523

7 pieces of lemon pattern ceramics from Sorrento, Italy. Hand crafted and painted. \$400.00 or best offer 925-820-9074

Kitchen Table. Oval maple wood table and four chairs with one leaf. 36 x 48 includes leaf. Good condition. \$75.00 925-455-5693

Beautiful wood breakfast nook, seats 6 plus. \$300.00 OBO. 209-321-9970 or 209-832-0444

Solid Oak Roll Top desk W/Locking Top. Dark Wood, Paid \$1200 sell for \$400 Firm. Not A Scratch. 925-516-8339

2 solid oak swivel chair bar stools - 24 inches high and in excellent condition. \$55 each. 510-490-2344

Dishwasher time delay wht \$50, Kenmore oven blck door wht top \$50,

Samsung 1.05Kw blck microwave spin plate \$15, All great working condition, \$OBO 209-835-0833

CARDBOARD BOXES, STURDY for moving/storage,medium size- good for books, dishes, folded flat for easy loading: 40 for \$50 925-447-7070

MISCELLANEOUS

White metal sofabed frame. You add the futon. Make offer. 925-516-2570

Cal Spa Hot Tub blue marble, 5-6 person with or without gazebo excellent condition Best offer. 925-413-2171

Wood gun cabinet \$50/obo, Lopi fire-place insert \$200/obo, Pinball machine \$65/obo. 925-550-3809

Discovery toys preschool items, gently used, 1/2 price. 48 piece floor puzzles, dinosaurs, solar system. \$5 each. 925-454-0877

Gold hoop earrings, 10 karat 1 inch oval. New in unopened box. Paid \$50. Great graduation gift. \$30 925-648-0671

Redwood picnic table for 6-8 people. Good condition. \$50.00 OBO. Canning jars, various sizes. \$10.00. 510-582-2938

Wedding dress, new/never worn, size 10, antique white, must see to appreciate, \$900. 925-447-4161

FOR SALE: Solid wood, walnut executive desk, 361 by 721, with plexiglass surface protector. Excellent condition, \$125.00. 510-886-3322

Like to sing? Come visit Sweet Adelines at Harmony Crossroads Guest Night on June 13th at 7:30pm. Rehearsals in Pleasanton. 209-839-9652

Firewood, split, pine, \$60/half, \$100/whole, or the pile, 3.75 cords for \$250. Bill or Pat, 925 447 8557 925-447-8557

Love Seat/Couch for sale, blue w/light multi colors, \$295 or best offer, great condition, see in Ripon area, call after 6:00pm 925-447-4898

Purple HOPE cancer bracelets for \$1.00. Just like the yellow LiveStrong bracelets from Lance Armstrong. 100% of the proceeds go to ACS 925-373-9435

SF Giant tickets for sale. If interested, call for available dates. 925-382-2918

Large Garage Sale - Saturday June 18, 8am to 3pm - 2713 Donner Trail, Riverbank Call for directions. Household, x-mas, furniture, misc. 209-869-4884

MOTORCYCLES

1975 - Honda XL125, Good condition, low miles, green sticker. \$500 OBO 925-443-3283

1998 - BMW R1100RT, Great shape,All bags, new tires & brakes, just serviced and tuned,115k miles Ready to Ride! \$4700.00 209-599-4644

1998 - 98 Ducati ST2. 17K, 1st owner, never been down, adult owned, new Michelins, hard bags. \$5400.00 209-830-4316

1998 - Honda Shadow ACE 1100. Many Custom Parts. Sissy bar, bags, pipes. Runs Great. \$3995 firm. Well below blue book. 925-513-7425

MUSIC INSTRUMENTS

Drum hardware. Mapex, Janus series hihat stand, \$135./ Janus double pedal,\$235. Both like new! 925-373-6255

PETS & SUPPLIES

Alaskan Malamute free to good home. He is great with kids Housetrained and listens on command 209-983-8480

New Innotek Preimium Rechargeable IN GROUND Pet fencing system 1000 feet (2spools) wire and surge suppressor. \$216 925-785-4680

Free: 4 yr. old papered female Dachsund,not spayed. Very lovable and needs a loving home. Please call for more information. 408-729-7498

Free to loving home, 2 indoor male (brothers) tiger cats. ~4.5 yr old, de-

clawed, neutered, good with children. 925-449-5650

Rabbits, free to good home, 2 females,each two years old. 925-447-4370

Help Tracy Animal Rescue! To continue rescue work, we desperately need donations/volunteers. Visit at Tracy Petsmart-Sundays 209-546-1517

RECREATION EQUIPMENT

1997 - Motorhome, Jamboree Searcher, class C, 24ft. Ford chasis, V10 engine. 33,000 miles. Excellent condition. \$28,000. 209-823-5845

1997 - Motorhome, Jamboree Searcher, class C, 24ft. Ford chasis, V10 engine. 33000 miles. Excellent condition. \$28,000. 209-823-58452002 -

Utlitiy trailer. 76 in. by 14 ft. bed. Ramp gate and fixed gate. Located in Lot A-8E, \$1000 Bob Boyd 925-447-8997

35 HP electric start outboard with prop, cables (shift, throttle, steering), key and gas can. 766-8233. Make Offer. 925-516-2570

Pool by Intex, inflated size 66 inch x 16 inch round. 3 air chambers w/double valves. Water capacity 168 gallons. New in unopened box. \$10 925-648-0671

Cargo box. Thule roof cargo box. Mint condition. \$75 925-373-6255

Treadmill Pro-Form CrossWalk Advanced 525X. Only 2 years old, very little use. \$400.00. 925-447-4805

1995 550sx & 440sx Jet Skis on dual trailer. Good Condition. Tested last week-end. Work great. \$1800.00. 209-983-8886

Mares Plana Avanti Fins, size small. Great condition, never used. \$50 925-634-2701

RIDESHARING

Express your commute, call 2-RIDE for more information or visit <http://www-r.llnl.gov/tsmp>.

Patterson - 2000 Dodge Ram 3500 Van/15-passenger commuter vanpool. I am moving; riders do not want to take over. Must sell. \$6,500obo. 209-892-2118 ext. 2-9502

Riverbank or Oakdale - Looking for Vanpool or Carpool space 1 rider M-F hours adjustable. Starting June 20th. 209-529-0431, ext. 2-8828

SERVICES

House Cleaning Services.-Reasonable, Truthful And Good Experience.- Call For Free Estimates!! 209-612-3185

Wedding Photography: 25 years exp. Medium format cameras used. You keep the negatives.925-829-1474

Excellent and affordable Day Care, ages infant up to 4 years old. Close to Lab. Please call Annie. 925-454-0410

INTERIOR, EXTERIOR PAINTING Low season rates, free estimates. Its a good time for painting before the weather gets too hot. 510-537-7222

House cleaning,Call for pricing and free estimates. Lab Employee special Rates. 925-337-4299

ClutterLess(CL) Self Help Group. Clutter stressing you out? Mondays 7-8:30 PM. Just Come: Pleasanton Presbyterian, Rm 7, 4300 Mirador Drive, or 925-426-5311

SHARED HOUSING

Discovery Bay - Unfurnished master bedroom w/bath, on the water, kitchen & laundry. No smoking, mature adult, share utilities, \$600/mo. 925-634-8523

Livermore - Furnished room near LLNL. No smoking, pets, stereo, or guns. \$450/mo and share utilities \$100 deposit. 925-455-6044

TRUCKS & TRAILERS

1997 - 2wd,2dr TAHOE LT white/gray 96k mi lowered beltech, 20in wheels, clean title asking 12k obo call 209-832-2878

1967 - Custom Series Chevy Truck \$2500/obo, 1982 Ford F350 \$1600/obo, enclosed trailer \$200/obo. 925-550-3809

1995 - Chevy 2500 ex/cab 4x4, 8 foot bed, diesel engine, runs excellently, gooseneck hitch, great shape, \$6250 209-832-7655

1995 - GMC Jimmy, auto/air,2dr, xInt condition, 88K mi, \$4900 925-373-1029

1996 - Ford Ranger XLT, extra cab, good running, bedliner,long bed, cassette. 5,290.00 OBO 510-537-7222

Tow Dolly, New lights, wiring and paint. \$550/obo Call 209-648-0702

VACATION RENTALS

Arnold cabin, Highway 4 High Sierras, 4 bedrooms, 3 bathrooms, many amenities, hot tub. 209-478-0340

Tahoe Donner Cabin, 3br/2ba. Near golf, hiking, biking, fishing, boating. 125/nt. Reduced wkly rates. Donner Assoc. amenities incl. 925-858-0419

Soooo cute beach cottage in Santa Cruz near boat harbor. 2bedr, 2bath, spa, 4 blks to ocean. 1 mile to boardwalk. Lots of fun! 925-245-1114

Cozy mountain cabin near Arnold. 4bedr, 2bath, near hiking, fishing, boating. Lots of outdoor activities. Plan ahead for summer. 925-245-1114

SOUTH LAKE TAHOE - 3 Bedroom 2 Bath Chalet, nicely furnished, quiet area, park with Lake, tennis, etc., Great for family vacation. RESERVE NOW! 209-599-4644

Solana Beach/Del Mar - Oceanfront condo, Deluxe 2 br., 2 1/2 ba., fully equiped, tennis, jacuzzi, gated and covered parking, near San Diego attractions 925-443-2271

Raft the Truckee river, hike Royal Gorge or sit on the balcony and take in a breathtaking view. 1BR w/loft at historic Soda Springs Station, \$550/wk 415-927-4415

MAUI - 1 year house exchange. Perfect opportunity to see what it is like to live in paradise for longer than a short vacation 925-449-4003

Reno, NV - 1 bedroom, sleep 4, fully and nicely furnished w/ fire place. 12/24-12/31 other dates available. \$950.00/7nts OBO. 925-998-9861

Maui, HI - Kahana Reef oceanfront 1BR/1BA condominium. Beautiful two-island view, oceanside pool, and BBQs. LLNL rates for year-round reservations. 925-449-0761

Soda Springs/Donner summit cabin, 2 BR,Sleeps 8, close to hiking bikeing everything \$200wknd,\$500wk 209-836-3481

Tahoe cabin for rent 2 blocks from Heavenly, 2 miles from casinois. Sleeps approx 8 adults. \$400/wk, \$200/wknd. 925-240-1615

WANTED

Want the 4 Firestone Tires but the number listed is no good. please call 209-474-3665

Extras to play stormtroopers in my Star Wars themed wedding on Sat. Aug. 13th at Garre Vineyards. I can supply uni-forms. 925-371-6588

Slide Trays for Kodak Carousel or Ektragraphic projectors 925-443-4918

I want the 4 Firestone Wilderness tires listed but the phone number is no good. Please call me 209-474-3665

WANTED---Need individual members to join my Relay team and help fight CANCER. June 25-26. 9am -9am. Livermore High. 925-373-9435

Wanted: Used Ladies Schwinn 3 or 5 speed bicycle. Please call 925-447-2068

Looking for Old pentium PC with cd drive, do not need monitor, <\$50. 925-462-3995

Wanted- Person to help with yardwork, painting, auto repair, odd jobs, weekends or evenings Livermore or Pleasanton 925-447-7070

COCHRAN

Continued from page 1

Security Organization since October, plans to leave LLNL on June 29.

"I've worked with great people at the Laboratory; there's been a willingness to take risks and a willingness to push people to accomplish their best," Cochran said.

In accepting Cochran's retirement, Lab Director Michael Anastasio remarked, "I have known and personally worked with Steve my entire career — first as my division leader and early mentor in B Division, and now as a member of my management team. Our careers have intersected throughout this time frame. Steve has a combination of technical acumen, sharp wit and great passion for our national security mission. He was there in the beginning — to launch the formation and growth of NAI — and most recently in the establishment of our roles for homeland security. I wish him only the best for the future."

Wayne Shotts, the former NAI associate director and present Lab deputy director for Operations, noted, "Steve has been a tremendous contributor at the Laboratory. Since our days together at Cornell our careers have crossed paths many times. Most recently, Steve's energy, technical breadth, and outstanding leadership skills have been critical to taking NAI and HSO from start-up organizations to major components of the Lab."

A Lab employee for more than 30 years, he started in NAI within a month of the new directorate's formation in 1992 by then-Lab Director John Nuckolls, who picked Bob Andrews as the organization's first associate director.

Cochran has continued to work in NAI for the past 13 years, holding a number of positions, including serving for the past 10 years as its deputy associate director for Programs.

"My role has been to coordinate and integrate the range of programs within NAI into a single strategy. Our aim, through our four divisions, has been to prevent proliferation and terrorism (P Division), detect and reverse it (Q division), respond (R Division) and



JACQUELINE MCBRIDE/NEWSLINE

Former P Division leader and retiree Bill Dunlop (left) shares a laugh with Steve Cochran, the acting associate director for NAI who is retiring June 29, and his wife, Cynthia, during a retirement celebration in Bldg. 132S Thursday afternoon.

avoid surprise (Z Division)," Cochran said.

"While NAI was formed to combat the proliferation of weapons of mass destruction by both states and non-state groups, the organization's establishment made it natural for the directorate to extend its capabilities to homeland security," Cochran said.

Factors highlighting the need for fighting terrorism, in Cochran's view, include the concern over nuclear materials with the break-up of the former Soviet Union, the nerve gas attack by the Aum Shinrikyo cult in Tokyo and later, the Sept. 11, 2001 World Trade Center attack, which he termed "a defining event."

"The World Trade Center attack changed our security perception dramatically enough about our own security — things that weren't previously thought possible became possible."

Since its inception, NAI has grown significantly, from a budget of about \$60 million and 255 employees in 1992 to its current budget of more than \$300 million and some 865 employees.

The challenge in growing the program,

said Cochran, has been to have smart growth — growth that is synergistic with the organization's strategic vision.

"We've tried to bring in projects that are consistent with our vision and mission for the organization. We had to figure out who we were and what we were good at."

Cochran came to LLNL in 1974, joining the Weapons Program's B Division, where he worked as a physicist doing code development for six years. Next he served as the associate division leader for computational physics in A Division and then as high explosives technology leader in the Chemistry and Materials Science Department.

He also was the leader of B Division for seven years and then deputy associate director for Defense Systems and Nuclear Design for one year before moving to NAI.

Cochran was named to his current positions last October when NAI associate director and acting director of LLNL's Homeland Security Organization, Wayne Shotts, was tapped to be the Lab's acting

deputy director of Operations, a position he now holds.

During his Lab career, Cochran's highlights include the development of a material model for high explosives, an important contribution to nuclear explosive safety, a contribution to a weapons component and his work in NAI.

"I can't take credit for hiring Mike Anastasio, but I can take credit for giving him his first two promotions at the Lab," Cochran said.

His main reason for retiring, he said, is so he and his wife, Cynthia, can move to the East Coast to live near their three children, Stephen Jr., Meredith and James, and their two grandchildren.

He also believes the timing is right for the directorate.

"Change is good," Cochran said. "I've been at the Lab a very long time and I've certainly enjoyed my tenure in NAI. But there are a lot of new ideas out there and it's time to let those emerge. I look forward to seeing all the great things that can and will happen with this directorate."

DNA

Continued from page 1

of DNA that interact with the proteins that help control gene expression, can be a long distance on the DNA strand from the genes they influence. Recent research also has shown that gene expression can be controlled by several regulatory proteins working together at a combination of different binding sites.

Regulatory proteins are known as "transcription factors"; transcription is the first step in the process by which the genetic information in DNA is decoded by the cell to manufacture proteins, the building blocks of life.

"It's difficult to experimentally observe how transcription factors bind to DNA at a distance from a gene, or how regulation happens," said Krzysztof Fidelis, a computational biologist in the Laboratory's Biosciences Directorate. "But you can identify their binding sites in a promoter or regulatory region — there are usually a few of these for each gene. We wanted to see if we could somehow deduce how many transcription factors at a time, or combinations of factors, are coming together physically and how these combinations regu-

late genes."

"To accomplish this," said the LCB's Jan Komorowski, "we used a machine learning technique called rough sets to mathematically model general rules that could associate known binding sites and gene expression in yeast, which is one of the most widely studied organisms." From the analysis of gene activity under a variety of environmental conditions, the teams were able to develop a set of rules for predicting the location of binding site combinations based on limited binding site and gene expression data.

"We found that the same transcription factors, in slightly different combinations, could be responsible for the regulation of different genes," said Torgeir R. Hvidsten of the LCB. "Thus we now know that binding sites can be combined to allow a large number of expression outcomes using relatively few transcription factors."

Others collaborating in the project were Jerzy Tiurny of the Faculty of Mathematics, Informatics, and Mechanics at Warsaw University in Poland; Bartosz Wilczynski of the Institute of Mathematics, Polish Academy of Sciences, and LLNL; and Andriy

Kryshtafovych of LLNL. A report on the joint work appears in the June issue of the journal *Genome Research*.

The rough set technique was developed by Zdzislaw Pawlak in Poland in the 1980s and is particularly suitable to build models from incomplete and uncertain data. It has been used in applications ranging from medical and financial data analysis to voice recognition and image processing. Applied to gene regulation, the approach was able to predict the location of regulatory sites for about one-third of the genes in the yeast genome — a success rate as good as or better than other current techniques.

"The next step is to test this approach on different organisms, including microbes and vertebrates," Fidelis said. The growing number of organisms whose genomes have been sequenced has generated a wealth of DNA sequence information that could provide the raw material for analysis.

Primary funding for the research was provided by LLNL's Laboratory Directed Research and Development Program, the Knut and Alice Wallenberg Foundation, and the Swedish Foundation for Strategic Research.



THE BACK PAGE

CARBON

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same geochemical reaction (carbonate weathering) occurs naturally to reduce and neutralize excess global CO₂, but at a much slower pace.

About 80 percent of the world’s carbon dioxide — whether released in the atmosphere or the ocean — ends up in the ocean in a form that will make the ocean more acidic. While the carbon dioxide is in the atmosphere, it could produce adverse climate change. When it enters the ocean, the acidification could be harmful to marine life.

When carbon dioxide reacts with crushed limestone and seawater, however, it buffers the pH(acidity) of the ocean and prevents it from becoming more acidic.

Earlier studies have shown that ocean acidity can have a very detrimental effect on marine life, especially corals, mollusks and other creatures that



NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.

A new carbon storage technique may benefit sponge, coral and searod such as these.

make their shells or skeletons out of calcium carbonate.

“Wastewaters from accelerated weathering of limestone would carry the waste carbon to the ocean mostly in the form of dissolved bicarbonates,” Rau said. “This should minimize adverse effects of carbon storage in the ocean and might even benefit coral reefs.”

Other forms of carbon sequestration include direct injection into the deep ocean or underground into depleted oil fields or salt formations. These methods are still in experimental phases and deep ocean injection may prove harmful to marine life because it would not neutralize carbon dioxide’s acidifying potential.

“In addition to minimizing impact to marine life, the dissolved limestone would tend to keep the carbon dioxide in the ocean and out of the atmosphere,” Caldeira said. “This process would happen anyway, but on about a 6,000-year time scale.

COUNSEL

Continued from page 1

Laboratory’s senior management team, and, as such, participates in the leadership of the institution. The Lab Counsel also manages the LLNL Office of Laboratory Counsel, supervising a staff of approximately 30 with a budget of \$4.5 million.

Allain replaces Jan Tulk, who had served as the Lab’s chief legal counsel for more than 11 years. Approximately four years ago, Tulk was promoted to associate director of Administration and Human Resources, while continuing her role as legal counsel as an interim measure.

“I want to thank Jan for her exceptional leadership and willingness to take on two positions these past four years,” Anastasio said. She will assist Melissa in the transition of this important position.”

“This is a unique and exciting opportunity to support a top-notch research and development laboratory that is responsible for national and global security, and developing cutting-edge technology on a number of vital scientific fronts,” Allain said. “I feel honored and

privileged by this appointment.”

“Melissa’s background and skills are an excellent fit with the legal issues confronting the University and the Laboratory, and my colleagues and I look forward to working closely with her as she assumes this important function,” said Holst. “In addition to being the principal source of legal advice and representation for the Laboratory, the Laboratory Counsel has a critical role as a part of the University General Counsel’s office.”

Allain’s areas of expertise include governance, ethics and compliance; environment, safety and health; labor and employment; compliance and operations training; litigation and enforcement proceedings; audits and investigations; and risk management and loss prevention. She served as chief compliance counsel with Tyco Fire & Security prior to joining the Lab.

Before accepting the chief compliance counsel position with Tyco, Allain was vice president, law, at AutoNation, the largest automotive retailer in the country. As part of that experience, she also served as vice president of environmental and real property law. Previously, Allain was Senior Assistant Counsel at

Union Oil Company of California (Unocal).

There, she provided legal support for the Carbon and Minerals Division, which consisted of multiple, independently operated business units engaged in domestic and international operations in mining, product development, and manufacturing, as well as distribution of specialty products. Before her corporate positions, Allain engaged in private practice at several law firms, including principal at Parker, Milliken, Clark, O’Hara & Samuelian, one of the oldest firms in Los Angeles.

She began her career as a law clerk in the U.S. District Court in Boston.

Allain obtained her law degree from Harvard and served on the Harvard Environmental Law Review. She received her bachelor’s degree from Loyola Marymount in California. She is a member of the State Bar of California and Authorized House Counsel with the Florida State Bar.

She is conversant in French and Spanish and has studied Mandarin Chinese. Allain is married with two daughters. She enjoys tennis, yoga and cooking.



JACQUELINE MCBRIDE/NEWSLINE

Rodeo ready

Scott Wilson of Public Affairs took the reins Wednesday evening as a “Greenhorn” participant in the Livermore Rodeo’s 23rd Annual Team Penning competition at the Robertson Park Rodeo Grounds. Each “Greenhorn” was teamed-up with two experienced riders to attempt to beat the clock, and the opposition, in a calf penning competition. Wilson’s team kicked up plenty of dust, but unfortunately did not place in the contest.



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